

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

<b>In the Matter of</b>	)	
	)	
<b>Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band</b>	)	<b>WT Docket No. 07-293</b>
	)	
	)	
<b>Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band</b>	)	<b>IB Docket No. 95-91 GEN Docket No. 90-357 RM-8610</b>

**To: The Commission**

**REPLY TO OPPOSITIONS TO PETITION FOR CLARIFICATION  
OR PARTIAL RECONSIDERATION**

ARRL, the national association for Amateur Radio, formally known as the American Radio Relay League, Incorporated (ARRL), by counsel and pursuant to Section 1.429(g) of the Commission's rules [47 C.F.R. §1.429(g)], hereby respectfully submits its reply to the *Opposition of the WCS Coalition to the ARRL Petition for Clarification or Partial Reconsideration* filed in this proceeding on or about October 18, 2010 (the "WCS Opposition").<sup>1</sup> ARRL had asked that the Commission clarify, or partially reconsider a single aspect of its *Report and Order and Second Report and Order*, FCC 10-82, 75 Fed. Reg. 45058, released May 20, 2010 (the R&O) in this proceeding. ARRL asked that the Commission clarify and affirm (1) that Section 2.102(f) of the Commission's rules applies to Wireless Communications Service (WCS) fixed and mobile operations, so that harmful interference that is caused to Amateur Radio Service operations in the 2300-2305 MHz band by WCS facilities operating above 2305 MHz is

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<sup>1</sup> ARRL submits no separate Reply to the October 18, 2010 Opposition of AT&T, Inc. to several Petitions for Reconsideration in this proceeding including that of ARRL, because AT&T offered no substantive argument in its Opposition relative to ARRL's Petition except to endorse generally the Opposition of the WCS Coalition. *See, the AT&T Opposition*, at 8. Based on the October 18, 2010 date of the WCS Opposition, this Reply is timely filed. *See*, 47 C.F.R. §1.429(g).

to be remedied by WCS licensees; and (2) that the current out-of-band emission (OOBE) limits for WCS devices set forth at Section 27.53(a)(3) of the Commission's rules continue to apply to mobile, portable and fixed facilities across the *entirety of the 2300-2305 MHz band* following the rule changes implemented in the R&O. If those clarifications cannot be made, ARRL requested that the Commission reconsider the R&O accordingly. The WCS Coalition ("WCSC") opposes ARRL's request numbered (1) above but interposes no objection to ARRL's second request.<sup>2</sup> For its reply, ARRL states as follows:

1. The WCS Opposition is remarkable in that it is premised in its entirety on a fundamental, conceptual mistake relative to the allocation status of the 2300-2305 MHz band and the obligation of adjacent band licensees operating in accordance with the table of allocations, 47 C.F.R. §2.106. WCSC's error is concisely stated on the first page of the WCS Opposition. WCSC states: "In effect, ARRL is asking the Commission to revisit its 1997 decision to subject amateur users to secondary status in the 2300-2305 MHz band relative to Wireless Communication Service...licensees that have primary status in the adjacent 2305-2320 MHz band." In fact, such a determination was *never made* in the 1997 Report and Order establishing the WCS<sup>3</sup> or otherwise, before or since. ARRL is not asking for a revisiting of General Docket 96-228 because there is no reason to do so. WCS licensees, under existing rules: (1) have no entitlement to cause interference to licensed radio services outside of the Part 27 allocations beginning above 2305 MHz; and (2) do in fact have an obligation pursuant to Section 2.102(f) of the Commission's Rules [47 C.F.R. § 2.102(f)] to protect Amateur stations operating in the

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<sup>2</sup> At page 9, footnote 29 of its Opposition, WCSC states that "ARRL also asks the Commission to clarify that the 43 + 10 log (P) OOBE attenuation factor for WCS devices applicable at 2305 MHz apply (sic) across the entirety (sic) of the 2300-2305 MHz band. *See* ARRL Petition at 1. The WCS Coalition has no objection to this clarification."

<sup>3</sup> Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service, *Report and Order*, 12 FCC Rcd 10785 (1997).

2300-2305 MHz band from interference due to WCS transmissions above 2305 MHz. Section 2.102(f) states that “(t)he stations of a service shall use frequencies so separated from the limits of a band allocated to that service as not to cause harmful interference to allocated services in immediately adjoining frequency bands.”<sup>4 5</sup>(Emphasis added).

2. The principal source of WCSC’s misunderstanding (which is abetted by the Commission’s distinct lack of clarity about this point in footnote 405 and paragraphs 162 and 163 of the R&O in this proceeding) is that there is an Amateur secondary allocation but no primary allocation in the 2300-2305 MHz band, and the Commission has in the past typically referred to the 2300-2310 MHz band as a single segment. This is historical, as is explained below. However, the secondary-but-no-primary allocation status of Amateur Radio in the 2300-2305 MHz band did not commence with the 1997 WCS Report and Order. The 2305-2310 MHz segment is allocated to the WCS now on a primary basis and to the Amateur Service on a secondary basis. There is no doubt but that at 2305-2310 MHz, Amateur operations are secondary to WCS operations and are not protected from interference from WCS facilities. However, *WCS has no allocation below 2305 MHz*, and the Commission’s rules (and the domestic Table of Allocations, Section 2.106 of the Commission’s rules) are quite clear that WCS licensees enjoy no entitlement to disrupt adjacent band radio services, and never have.

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<sup>4</sup> WCSC attempts feebly to limit the application of this rule section to some VHF and UHF channels (See WCSC Opposition at footnote 19), but the rule is obviously of universal application, appearing as it does in Part 2 of the rules dealing with frequency allocations generally. Furthermore, ***the rule is taken almost verbatim from the international Radio Regulations, and so could not have had the limited application that WCSC erroneously surmises that the Commission intended.*** RR 4.5 states as follows: “The frequency assigned to a station of a given service shall be separated from the limits of the band allocated to this service in such a way that, taking account of the frequency band assigned to a station, no harmful interference is caused to services to which frequency bands immediately adjoining are allocated.” So the obligation on the Commission is not based purely on its own rules, to which it has failed to adhere in this proceeding. It is also an international treaty obligation, binding on the Commission.

<sup>5</sup> Without question, the term “allocated services” in this rule encompasses both primary and secondary services.

3. Prior to August, 1995, the 2300-2310 MHz band was shared successfully between the Federal Government and the Amateur Service. The Amateur Service held a secondary allocation relative to the Federal government in that segment. The band 2300-2310 MHz was among several bands reallocated from Federal government use pursuant to the Omnibus Budget Reconciliation Act of 1993<sup>6</sup>. Title VI of that Act required that the Secretary of Commerce, in making reallocations of government spectrum shared with the Amateur Service, determine the extent to which, in general, commercial users could share the frequencies to be reallocated with Amateur Radio licensees.<sup>7</sup> The Consolidated Omnibus Appropriations Act of 1997<sup>8</sup> very specifically ordered that the Commission make available for auction the bands 2305-2320 MHz and 2345-2360 MHz to wireless services that are consistent with international allocations agreements. Therefore, neither Congress nor the Commission at any time envisioned or considered any allocation for WCS below 2305 MHz. The continued Amateur secondary status at 2300-2305 MHz was not “relative to WCS licensees” (as WCSC put it) or to any other allocated service, then or now. Rather, only the 2305-2310 MHz portion of the 2300-2310 MHz secondary Amateur allocation is secondary to WCS, and hence subject to any interference from WCS facilities above 2305 MHz.

4. WCSC cites the *Notice of Proposed Rule Making* in GN Docket 96-228<sup>9</sup> for the proposition that the Commission did not propose any change in the Amateur 2300-2310 MHz secondary allocation but that Amateur operations *throughout* that range would be “secondary to

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<sup>6</sup> Pub. L. 103-66, 107 Stat. 312 (1993).

<sup>7</sup> See, the *Spectrum Reallocation Final Report*, NTIA Special Publication 95-32 (1993). The ultimate conclusion was that due to the Amateur weak-signal communications conducted near 2304 MHz, there was little chance of any sharing with commercial services.

<sup>8</sup> Pub. L. 104-208, 110 Stat. 3009 (1996).

<sup>9</sup> Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service; *Notice of Proposed Rule Making*, 11 FCC Rcd 21713 at 21719 (1996).

any WCS use of the 2305-2320 and 2345-2360 MHz bands.” The Commission’s language can only reasonably be read to subject only those Amateur operations in the 2305-2310 MHz portion of the band to secondary status relative to WCS operations, not Amateur operations below 2305 MHz. Were it otherwise, there would have been no need to create out-of-band emission limits applicable to the 2300-2305 MHz segment, which the Commission did in that docket proceeding.<sup>10</sup> Indeed, to remove all doubt that the Commission intended to keep WCS on its own side of the fence relative to adjacent band services, the Commission, at paragraph 34 of that same *Notice of Proposed Rule Making* stated: “In addition (to the creation of OOB limits), to further protect operations in adjacent bands, we propose to require that the frequency stability of transmission within the 2305-2320 and 2345-2360 MHz bands be sufficient to ensure that the fundamental emissions remain within the authorized frequency bands.” 11 FCC Rcd at 21730. This is consistent of course with the requirements of Section 2.102(f) of the Commission’s Rules.

5. As well, in the *Report and Order* in that proceeding<sup>11</sup>, at paragraph 25, the Commission allocated the 2305-2310 MHz segment on a primary basis to the fixed, mobile (except aeronautical mobile) and radiolocation services, but cautioned that the allocation would be subject “to specific technical rules that we adopt *infra* to prevent interference to other services.”<sup>12</sup> The Commission went on in that same paragraph to note that these limitations might, given the current state of technology, preclude much WCS use of the 2305-2310 MHz segment for mobile and radiolocation uses, and will increase the costs of fixed WCS facilities. It is

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<sup>10</sup> Notably, the OOB limits in the 2300-2305 MHz band ( $43 + 10 \log P$  dB) were, and still are different and less stringent than those established in that same docket for the purpose of protecting deep-space research below 2300 MHz.

<sup>11</sup> Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service; *Report and Order*, 12 FCC Rcd 10785 (1997).

<sup>12</sup> 12 FCC Rcd. At 10797

impossible to logically derive from this docket proceeding, as does WCSC at footnote 20 of its Opposition, that the Docket 96-228 proceeding held that “amateur users at 2300-2305 MHz would be secondary to *all* primary services and thus would have no interference protection rights against primary services in *any* spectrum, including the 2305-2320 MHz band.” That position is quite simply wrong and reflects a complete misunderstanding of the entire purpose of the table of frequency allocations and the allocations process.<sup>13</sup>

6. The *Report and Order* in Docket 96-228 created some clarifying amendments in the Amateur Service Rules, Section 97.303(j), which would “better alert Amateurs of their spectrum sharing responsibilities.” This rule makes no reference to Amateurs having to tolerate any out of band interference from WCS. Quite the opposite; contrary to WCSC’s arguments, 47 C.F.R. § 97.303(j)(2), relative to the 2300-2310 MHz segment, reads as follows:

(j) In the 13 cm [2300-2310 MHz] band:

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(2) In the United States:

(i) The 2300-2305 MHz segment is allocated to the amateur service on a secondary basis. (Currently the 2300-2305 MHz segment is not allocated to any service on a primary basis.);

(ii) The 2305-2310 MHz band is allocated to the amateur service on a secondary basis to the fixed, mobile, and radiolocation services.

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This indicates clearly that Amateur licensees operating in the 2300-2305 MHz band do not have to tolerate interference from WCS in that band.

7. Compounding its conceptual error, WCSC claims at page 5 of its Opposition that Section 2.102(f) of the Commission’s Rules “does not afford protection to a secondary service that is adjacent to a primary service.” Actually, that is precisely what the rule does. It protects all adjacent-band services, primary or secondary within that adjacent victim band, against

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<sup>13</sup> It is also inconsistent with the terms of the 1997 Report and Order establishing the WCS, because in that Report and Order, the Commission specifically stated that it was making no change in the status of the Amateur secondary allocation in the 2300-2310 MHz band by virtue of the creation of the WCS.

interference from assignments from an adjacent service that has no allocation status in the victim band – the exact situation here. Nor is it relevant at all that ARRL has in the past sought an upgrade from secondary to primary status within the 2300-2305 MHz band.<sup>14</sup> ARRL is not asking the Commission to “revisit” any aspect of past decisions. All such decisions are completely consistent with the clarification that ARRL is seeking here. What is inconsistent with past precedent and with the Commission’s own rules is that the Commission has in this proceeding dismissed any concern about interference to Amateur operations in the 2300-2305 MHz band, noting that some Amateur stations operating around 2304 MHz may experience an “increased antenna noise temperature” caused by the implementation of mobile WCS operations, and will “have to tolerate this change in the RF environment.”<sup>15</sup> Notwithstanding this, however, the Commission did make it plain in the R&O in this proceeding that WCS facilities will have to protect a variety of adjacent-band and nearby allocations against interference.<sup>16</sup> Those services

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<sup>14</sup> ARRL continues to urge that a primary Amateur allocation in the 2300-2305 MHz band is useful for a number of reasons, not the least of which is that the nature of Amateur operation in that band has proven compatible with space research operations below 2300 MHz over long periods of time. There are periodically proposals to allow other services in the 2300-2305 MHz band, none of which thus far has been shown to be compatible with continued Amateur operation in that segment. But that issue is not in any way relevant to this proceeding or to the entitlement of Amateur Radio operation at 2300-2305 MHz to protection against interference from WCS operation in the adjacent band 2305-2320 MHz. The reason that it is not relevant is that, in the 2300-2305 MHz band, the Amateur secondary allocation is a *de facto* primary allocation because in that band there is no primary allocation. See, 47 C.F.R. §2.106.

<sup>15</sup> R&O, footnote 405. The Commission’s references to “increased antenna noise temperature” and to “change in the RF environment” are thinly veiled references to a substantial potential for harmful interference from adjacent band users.

<sup>16</sup> WCSC, at footnote 15 of its Opposition, cites a 1995 proceeding involving the addition of an amateur secondary allocation within the 219-220 MHz band for the proposition that the Commission rejected a claim that a secondary licensee “is entitled to protection from adjacent channel (sic) (as opposed to cochannel) (sic) primary licensees.” What was held in that case is really quite different than WCSC represents. The actual holding in *Allocation of the 219-220 MHz Band for Use by the Amateur Radio Service*, 10 FCC Rcd 4446 (1995) was that the Amateurs, as new entrants to the band 219-220 MHz, *did in fact* have to protect not only other services with allocations in the same band, but also existing adjacent band services (in that case, interactive video data services operating at 218-219 MHz). The Commission for that premise cited 47 C.F.R. § 2.102(f). Thus, the case cited by WCSC stands for the precise proposition that ARRL urges in the instant case, and precisely against the argument made by WCSC.

that are to be protected include the Amateur Service.<sup>17</sup> It is the mixed signals in the R&O in this proceeding that necessitated ARRL's Petition for Clarification or Partial Reconsideration.

8. WCSC continues with an argument that Section 2.102(f) of the rules cannot be squared with Section 2.105(c) (2) (ii) of the Rules, which, WCSC argues, provides (with respect to the domestic table of allocations, Section 2.106 of the Commission's rules) that a secondary allocation status licensee cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date. The fatal flaw in this argument is due to WCSC's failure to read the entire rule in context. 47 C.F.R. § 2.105(c) begins as follows: "(c) *Category of Services.* (1) Any segment of the radio spectrum may be allocated to the Federal and/or non-Federal sectors either on an exclusive or shared basis for use by one or more radio services. *In the case where an allocation has been made to more than one service*, such services are listed in the following order... [listing of primary services in capital letters and secondary services in lower case letters described]...(2) Stations of a secondary service cannot claim protection from harmful interference from stations of a primary service to which frequencies are already assigned or may be assigned at a later date..." Therefore, as is patently obvious, this rule addresses the relative obligations of primary and secondary services *in bands within which allocations are made to both classes of licensee*.<sup>18</sup> Section 2.102(f) on the other hand addresses the obligations of an allocation holder in one band to allocation holders in adjacent bands. The conflict that WCSC perceives in the two rules does not exist when the rules are properly read in context.

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<sup>17</sup> See the R&O at ¶¶ 162-163.

<sup>18</sup> This rule is repeated with reference to the international table of allocations at Section 2.104(d) of the Commission's rules. It is taken from the international Radio Regulations, as discussed above.



9. What is perhaps most unfortunate about the tortured and untenable interpretation of the Commission's rules and the table of allocations urged by WCSC in its Opposition is that its effort is largely unnecessary. ARRL has already conceded that in most cases, the  $43 + 10 \log P$  OOB limit should minimize instances of interference from mobile WCS facilities above 2305 MHz to geographically proximate 2300-2305 MHz Amateur operations. There are a few cases in which WCS facilities meeting this limit may still create interference to Amateur stations operating at 2300-2305 MHz when in close geographic proximity to those Amateur stations.<sup>19</sup> In those instances, ARRL asserts, WCS licensees are obligated to bear the burden of resolving the interference. The Commission did not make this clear in the R&O, and ARRL requests that the Commission clarify it. Since WCSC interposes no objection to the other clarification sought by ARRL -- that the  $43 + 10 \log P$  OOB limit for WCS stations applies throughout the entirety of the 2300-2305 MHz band -- ARRL requests that the Commission make this clarification as well.

9. In summary, WCSC is under a substantial misconception about the obligations of WCS licensees to protect Amateur operations at 2300-2305 MHz. It is necessary for the Commission to correct that misconception. The Commission's footnote 405 in the R&O has contributed to WCSC's confusion, and is contrary to the Commission's own rules. The Commission must clarify that WCS mobile facilities are obligated to avoid causing, and to address and resolve instances of harmful interference to Amateur stations operating in the band 2300-2305 MHz, or to explain why the Commission is not adhering to Section 2.102(f) of its rules in this case and justify that departure.

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<sup>19</sup> As noted earlier, ARRL calculations show that a typical Amateur station operating in the 2300-2305 MHz band, assuming 23 dBi of antenna gain and a local noise figure of 3 dB, located 30 meters away from a mobile device complying with the limits, will see a 51 dB increase in noise from OOBs at the limit to the Amateur station in the main beam of the Amateur antenna. Typical antennas for Amateur use in this band have sidelobes at -20dB. In this case, there would still be an increase of noise 31 dB from a single nearby mobile WCS emitter.

Therefore, for all of the above reasons, ARRL, the national association for Amateur Radio, again respectfully requests that the Commission issue the requested clarifications and/or reconsider the rules adopted in the R&O in accordance with ARRL's Petition for Clarification or Partial Reconsideration in this proceeding.

Respectfully submitted,

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October 28, 2010

## CERTIFICATE OF SERVICE

I, Christopher D. Imlay, do hereby certify that I caused to be mailed, via first class U.S. Mail, postage prepaid, and sent by e-mail as well, a copy of the foregoing **REPLY TO OPPOSITIONS TO PETITION FOR CLARIFICATION OR PARTIAL RECONSIDERATION** to the following, this 28<sup>th</sup> day of October, 2010.

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